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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/523,301

08/04/2005

Jonathan Hughes

IA/3-22334/PCT

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EXAMINER

HRUSKOCI, PETER A

ART UNIT

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1797

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/523,301	Applicant(s) HUGHES ET AL.	
	Examiner /Peter A. Hruskoci/	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

The disclosure is objected to because of the following informalities: In the specification on page 1 “aluminium” is erroneous.

Appropriate correction is required.

Claim 20 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. In claim 1 “the suspended solids containing lignin” and in claim 20 “the suspended solids contain mainly lignin” lack clear antecedent basis in the specification as originally filed, and raise the issue of new matter. It is noted that page 5 of the instant specification is drawn to solid residues which contain mainly lignin, resulting from the separation process, and not to the suspended solids in the fermentation liquor recited in claim 1.

Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 1 “the suspended solids containing lignin” lacks clear antecedent basis. Claims 2-19 depend from the above claims.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 8-13, 14-17, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brink 5,536,325 in view of the Minowa et al. publication “The Characteristics

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Of Dewatering Ethanol Fermentation Stillage” and Hughes et al. 6,967,085. Brink disclose (see col. 5 line 38 through col. 6 line 60 and col. 9 line 11 through col. 11 line 34) a process for separating suspended solids from a fermentation liquor substantially as claimed. It is submitted that the liquor removed from the distillation stage in Brink would comprise water, lignin and BOD. The claims differ from Brink by reciting the addition of specific cationic and anionic polymers in the separation stage. Minowa et al. disclose (see Abstract) that it is known in the art to add cationic and anionic polymeric coagulants to aid in dewatering ethanol fermentation stillage. Hughes et al. disclose (see col. 1 lines 16-60, and col. 3 line 33 through col. 7 line 38) that it is known in the art to add the recited polymers and coagulants to aid in flocculating and separating cell or solid material from fermentation broths. It would have been obvious to one skilled in the art to modify the process of Brink by adding the recited polymers in view of the teachings of Minowa et al. and Hughes et al., to aid in dewatering solids in the separation stage. The use of the separation stage prior to the distillation stage, the specific intrinsic viscosities and doses utilized, and type of solids flocculated, would have been an obvious matter of process optimization, depending on the specific liquor treated and results desired, absent a sufficient showing of unexpected results. With regard to claims 15 and 16, it is submitted that Hughes et al. as applied above, disclose the use of centrifuge or filter in the separation stage or step.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brink 5,536,325 in view of the Minowa et al. publication “The Characteristics Of Dewatering Ethanol Fermentation Stillage” and Hughes et al. 6,967,085 as above, and further in view of Moffett 6,132,625. The claim differs from the references as applied above by reciting that the coagulant is a charged microparticulate material. Moffett disclose (see col. 3 line 3 through col. 6 line 39) that it is

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known in the art to add a flocculating agents and anionic microgels, to aid in flocculating biosolids present in aqueous streams from distilleries including sugars and carbohydrates. It would have been obvious to one skilled in the art to modify the references as applied above by addition of the recited microparticulate material in view of the teachings of Moffett, to aid in dewatering solids in the separation stage.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brink 5,536,325 in view of the Minowa et al. publication “The Characteristics Of Dewatering Ethanol Fermentation Stillage” and Hughes et al. 6,967,085 as above, and further in view of Chieffalo et al. 5,975,439. The claim differs from the references as applied above by reciting that the dewatered solids are subjected to a drying stage and used as solid fuel. Chieffalo et al. disclose (see col. 6 lines 40-64 and col. 36 lines 18-55) that it is known in the art to dewater and dry solids including lignin, and utilize the solids as a fuel. It would have been obvious to one skilled in the art to modify the references as applied above by utilizing the recited drying stage in view of the teachings of Chieffalo, to aid in producing a fuel from the dewatered solids.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned

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with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-19 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-23 of copending Application No. 10/587,582 and claims 1-22 of copending Application No. 10/587,583. Although the conflicting claims are not identical, they are not patentably distinct from each other because the process steps recited in the instant claims appear to be fully encompassed by the claims of the copending applications, respectively.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Applicants allege that the combination of Brink with Minowa does not suggest or teach the instant process because Brink removes essentially all of the lignin before fermentation and Minowa's stillage contains essentially no lignin. It is submitted that Brink as applied above discloses the use of a solids separation stage of a fermentation liquor or stillage after a distillation or rectification stage. It is noted that the process of Brink includes the hydrolysis of a lignocellulosic material, and it would appear that the finely dispersed or undissolved solids separated from the fermentation liquor of Brink would include solids comprising at least some lignin and BOD as in the instant process. It is noted that Minowa et al. as applied above was used to teach that it is known in the art of liquid purification to add cationic and anionic polymers to aid in improving the dewatering of a fermentation stillage. It is further noted that suspended solids would appear to be coagulated or flocculated by the addition of the polymers in Minowa et al., to aid in dewatering the stillage. Hughes et al. was used to teach that it is known

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in the art to add the recited polymers and coagulants to aid in flocculating and separating cell or solid material from fermentation broths. It would have been obvious to one skilled in the art having the teachings of Brink, Minowa et al., and Hughes before him, to modify the process of Brink by addition of the recited polymers in view of the teachings of Minowa et al. and Hughes, to aid in dewatering solids in the separation stage. Furthermore, applicants have not supplied sufficient comparative evidence with the teachings of the prior art as applied above, to support the above allegation.

Applicants' arguments concerning Moffett, and Chieffalo, appear to be based on the propriety of the combination of Bring, Minowa et al., and Hughes. This combination is deemed properly applied for reasons stated above.

Claim 1 properly written to overcome the above 35 USC 112 rejections, a step for flocculating suspended solids and lignin in the fermentation liquor, and to include the mechanical dewatering stage of claim 16, to separate flocculated suspended solids and lignin as cake solids, would be allowable, upon the filing of proper terminal disclaimers.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to /Peter A. Hruskoci/ whose telephone number is (571) 272-1160. The examiner can normally be reached on Monday through Friday from 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Peter A. Hruskoci/
Primary Examiner
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1/12/09